

Unit 15.5

Day 3

Graphing Rational Functions

Part 2

$$f(x) = x^2$$

$$f(x) = x^3$$

$$\text{deg } 5$$
~~$$\text{deg } 5$$~~

max turn. 1 

max turn 2

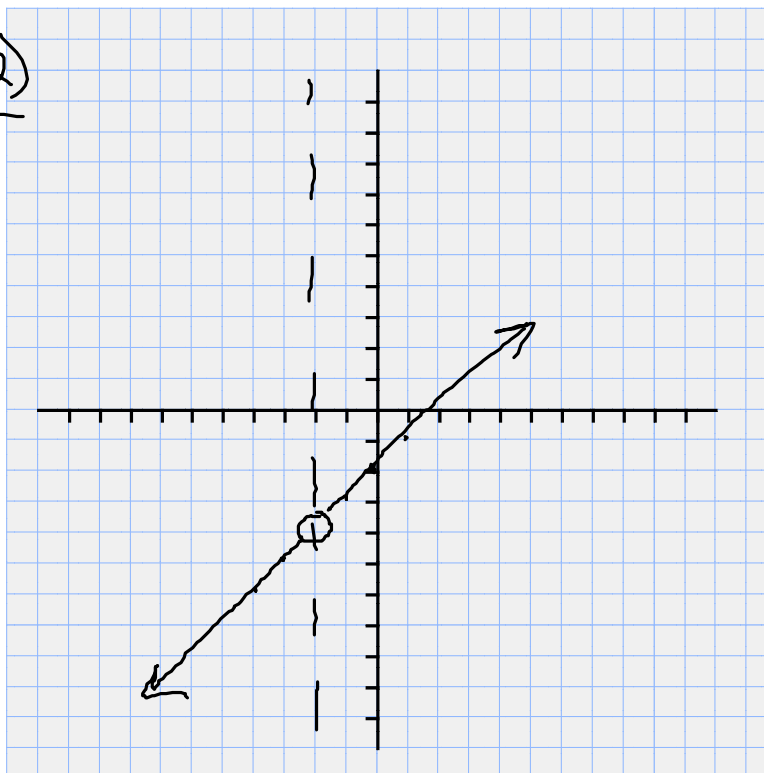
max turning 4

Always try to reduce the rational functions first.

$$\text{Ex1: } f(x) = \frac{x^2 - 4}{x + 2} = \frac{\cancel{(x+2)}(x-2)}{\cancel{x+2}}$$

$$y = mx + b$$
$$f(x) = x - 2$$

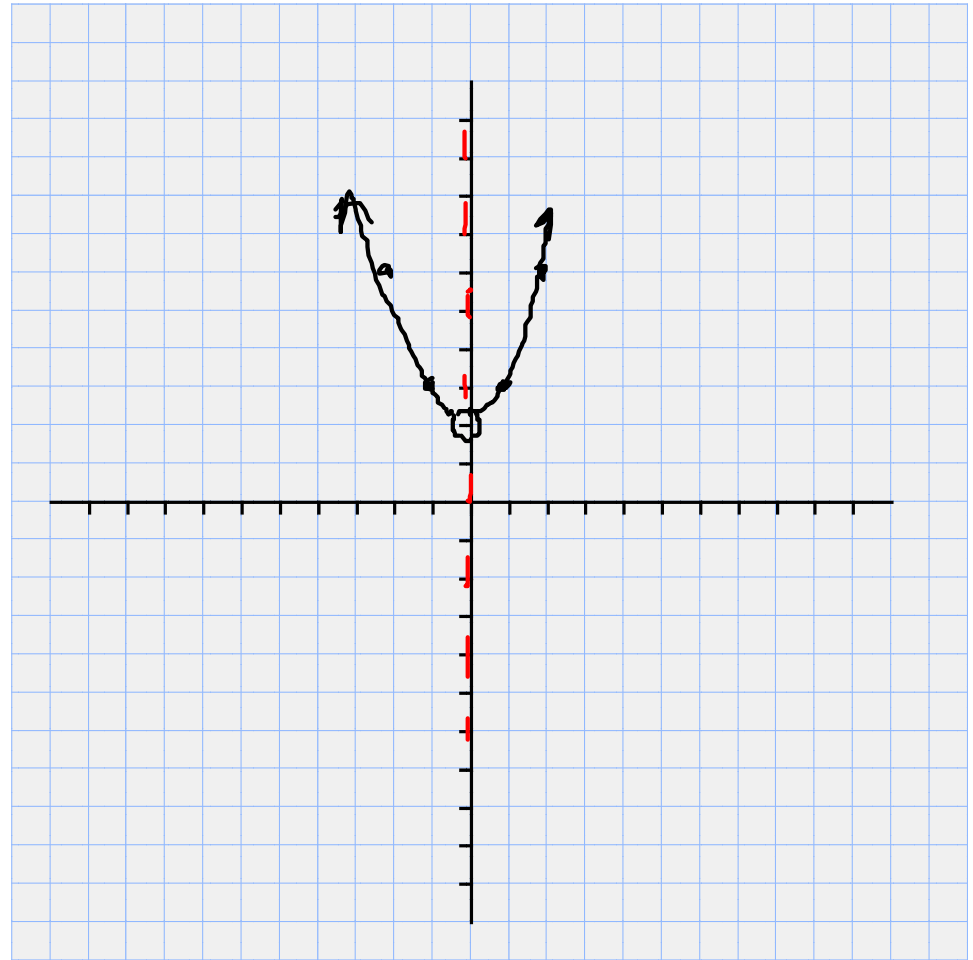
$$x \neq -2$$



Ex2: $f(x) = \frac{x^3 + 2x}{x}$

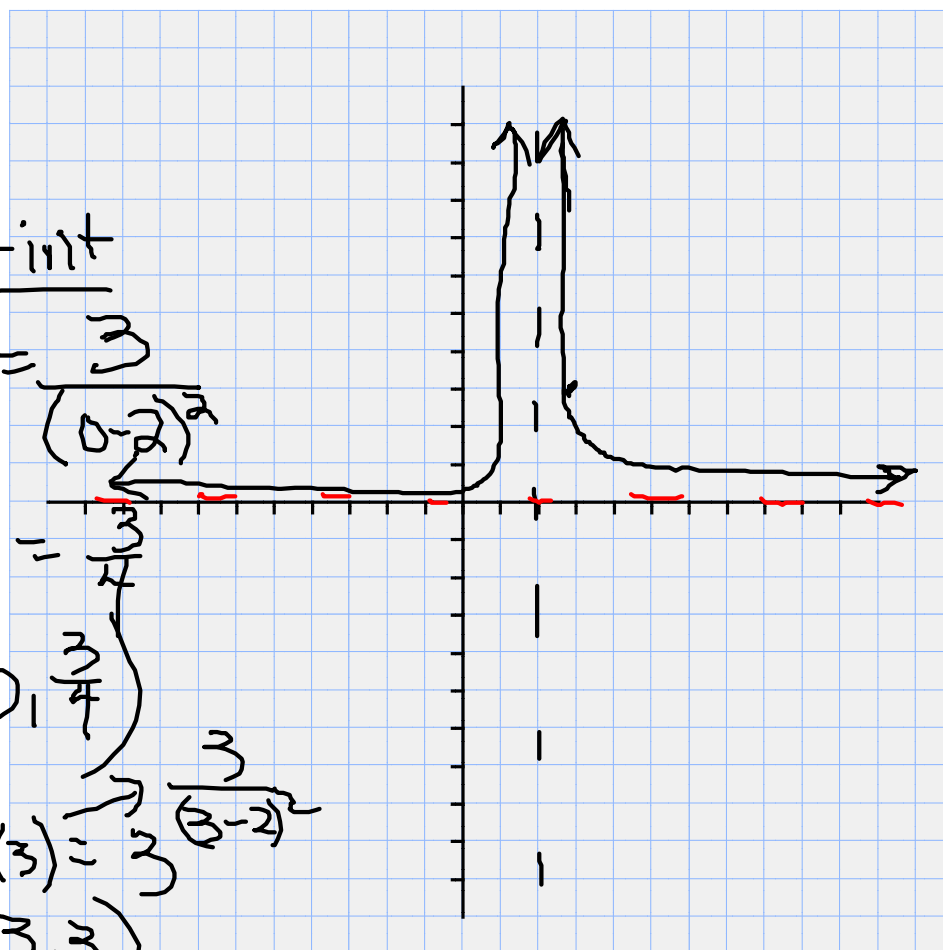
$$= \frac{\cancel{x}(x^2 + 2)}{\cancel{x}}$$

$$= x^2 + 2$$



Ex3: $f(x) = \frac{3}{(x-2)^2}$

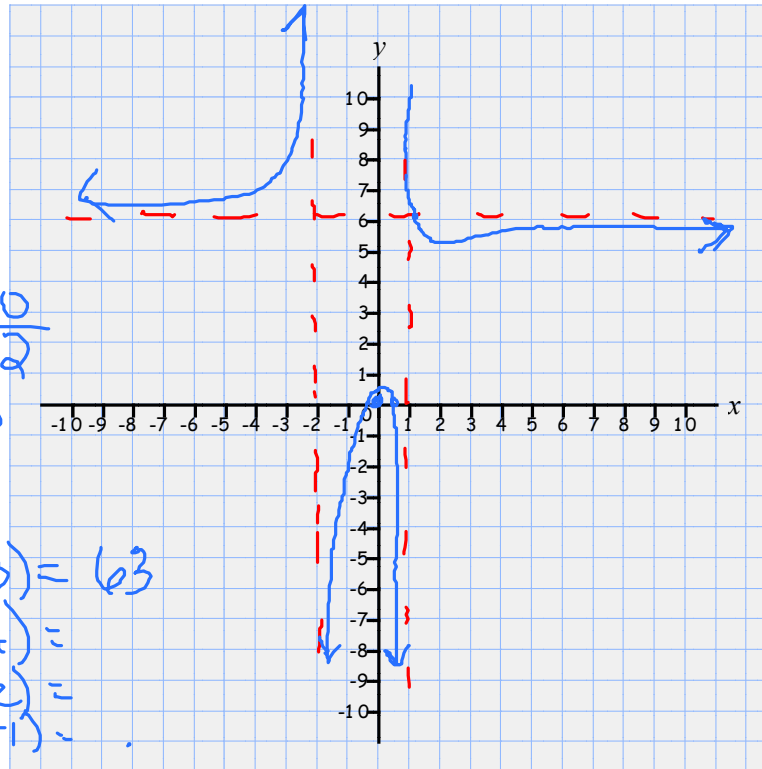
<u>V A</u>	<u>H A</u>	<u>X-int</u>	<u>Y-int</u>
$(x-2)^2 = 0$ $x = 2$	$y = 0$ crosses? $0 \in \frac{3}{(x-2)^2}$ $0 \neq 3$ Does not cross	$0 = \frac{3}{(x-2)^2}$ $0 \neq 3$ No x-int	$y = \frac{3}{(0-2)^2}$ $y = \frac{3}{4}$ $(0, \frac{3}{4})$ $f(3) = \frac{3}{(3-2)^2}$ $(3, 3)$



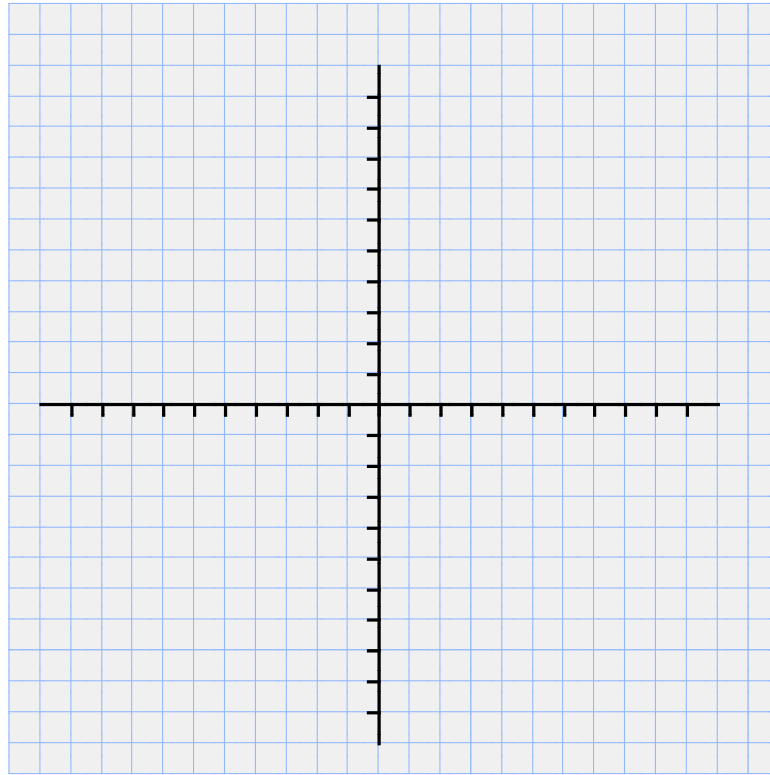
Ex4: $f(x) = \frac{6x^2 - 3x}{x^2 + x - 2}$

$$f(x) = \frac{3x(2x-1)}{(x+2)(x-1)}$$

<u>V.A</u>	<u>H.A</u>	<u>x-int</u>	<u>y-int</u>
$x = -2$	$y = 6$	$0 = \frac{6x^2 - 3x}{x^2 + x - 2}$	$f(0) = \frac{0-0}{-2}$
$x = 1$	Crosses?	$0 = 6x^2 - 3x$	$f(0) = 0$
	$6 = \frac{6x^2 - 3x}{x^2 + x - 2}$	$0 = 3x(2x-1)$	$(0, 0)$
	$9x = 12$	$x = 0, x = \frac{1}{2}$	$f(-3) = 63$
	$x = \frac{1}{3}$	$(0, 0), (\frac{1}{2}, 0)$	$f(\frac{1}{4}) =$
	$(\frac{1}{3}, 6)$		$f(2) =$
			$f(-1) =$



Ex5: $f(x) = \frac{x^2 - 2x + 3}{x - 2}$



Homework

p. 327: 25, 26-46 (even)